

## TEST REPORT

CheckCode:229210  
Report No.:C202411292384-16E

**Company Name:** Shanghai Eastsoft Microelectronics Co.,Ltd.  
**Address:** 3rd Floor, Building 12,Phoenix Park, No.1515 Gumei Road, Xuhui District,Shanghai.

**The following sample information is provided by the client and responsible for its authenticity**

**Sample Name:** LQFP Chip  
**Material:** LQFP48  
**Sample State:** Normal

**Date of Receipt:** Dec. 6, 2024 **Test Period:** Dec. 6, 2024 – Dec. 13, 2024

**Test Request:**

- 1) As specified by client, to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium [Cr(VI)], Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) content in the submitted sample(s).

**Judge Standard:**

- 1) RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.
- 2) EN 61249-2-21:2003

**Test Result:** Please refer to following page(s).

**Conclusion:**

- 1) Based on the performed test on submitted sample, the result(s) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.
- 2) Based on the performed test on submitted sample, the result(s) comply with the limits as set by EN 61249-2-21:2003.

Edited by Guo Yiyang Reviewed by Zhang Lina Approved by Zhang Xiaojing



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Issue date:Dec.13,2024

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Laboratory Add: No. 31, Nanxiang 2nd Road, Science City, Huangpu District, Guangzhou, P.R.China  
Tel: 4006020999 Fax: +86-020-38698685 Website: <http://www.grgttest.com>

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## Sample description:

Sample No.	Description
1	Black body with It-brown printing
2	Silvery metal pin

- Remark:
- 1) mg/kg = ppm
  - 2) MDL = Method Detection Limit
  - 3) "N.D." = Not Detected (Below Method Detection Limit)
  - 4) For metal sample
    - a. The sample is negative for Cr(VI) if Cr(VI) is N.D.(concentration less than  $0.10 \mu\text{g}/\text{cm}^2$ ).The sample coating is considered a non- Cr(VI) based coating.
    - b. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than  $0.13 \mu\text{g}/\text{cm}^2$ .The sample coating is considered to contain Cr(VI).
    - c. The result between  $0.10 \mu\text{g}/\text{cm}^2$  and  $0.13 \mu\text{g}/\text{cm}^2$  is considered to be inconclusive. unavoidable coating variations may influence the determination.

## Test result(s):

## 1) RoHS

## Test method:

Test Item(s)	Test Method	Measuring Instrument	Limit
Lead (Pb)	IEC 62321-5:2013	ICP-OES/AAS	1000mg/kg
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	100mg/kg
Mercury (Hg)	IEC 62321-4:2013 +AMD1:2017	ICP-OES	1000mg/kg
Hexavalent Chromium [ Cr ( VI ) ]	IEC 62321-7-1:2015	UV-Vis	---
	IEC 62321-7-2:2017	UV-Vis	1000mg/kg
Polybrominated biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	1000mg/kg
Polybrominated diphenyl ethers (PBDEs)	IEC 62321-6:2015	GC-MS	1000mg/kg

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Test Item(s)	Test Method	Measuring Instrument	Limit
Bis(2-ethylhexyl) phthalate (DEHP)	IEC 62321-8:2017	GC-MS	1000mg/kg
Butyl benzyl phthalate (BBP)	IEC 62321-8:2017	GC-MS	1000mg/kg
Dibutyl phthalate (DBP)	IEC 62321-8:2017	GC-MS	1000mg/kg
Diisobutyl phthalate (DIBP)	IEC 62321-8:2017	GC-MS	1000mg/kg

Test Item	Sample	Unit	MDL
	1		
Lead (Pb)	N.D.	mg/kg	2
Cadmium (Cd)	N.D.	mg/kg	2
Mercury (Hg)	N.D.	mg/kg	2
Hexavalent Chromium [Cr(VI)]	N.D.	mg/kg	8

Test Item	Sample	Unit	MDL
	2		
Lead (Pb)	N.D.	mg/kg	2
Cadmium (Cd)	N.D.	mg/kg	2
Mercury (Hg)	N.D.	mg/kg	2
Hexavalent Chromium [Cr(VI)]	N.D.	µg/cm <sup>2</sup>	0.10

Test Item	Sample	Unit	MDL
	1		
Sum of PBBs	N.D.	mg/kg	---
Monobromobiphenyl	N.D.	mg/kg	50
Dibromobiphenyl	N.D.	mg/kg	50
Tribromobiphenyl	N.D.	mg/kg	50

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Test Item	Sample	Unit	MDL
	1		
Tetrabromobiphenyl	N.D.	mg/kg	50
Pentabromobiphenyl	N.D.	mg/kg	50
Hexabromobiphenyl	N.D.	mg/kg	50
Heptabromobiphenyl	N.D.	mg/kg	50
Octabromobiphenyl	N.D.	mg/kg	50
Nonabromobiphenyl	N.D.	mg/kg	50
Decabromobiphenyl	N.D.	mg/kg	50
Sum of PBDEs	N.D.	mg/kg	---
Monobromodiphenyl ether	N.D.	mg/kg	50
Dibromodiphenyl ether	N.D.	mg/kg	50
Tribromodiphenyl ether	N.D.	mg/kg	50
Tetrabromodiphenyl ether	N.D.	mg/kg	50
Pentabromodiphenyl ether	N.D.	mg/kg	50
Hexabromodiphenyl ether	N.D.	mg/kg	50
Heptabromodiphenyl ether	N.D.	mg/kg	50
Octabromodiphenyl ether	N.D.	mg/kg	50
Nonabromodiphenyl ether	N.D.	mg/kg	50
Decabromodiphenyl ether	N.D.	mg/kg	50

Test Item	Sample	Unit	MDL
	1		
Bis(2-ethylhexyl) phthalate (DEHP)	N.D.	mg/kg	50
Butyl benzyl phthalate (BBP)	N.D.	mg/kg	50
Dibutyl phthalate (DBP)	N.D.	mg/kg	50
Diisobutyl phthalate (DIBP)	N.D.	mg/kg	50

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## TEST REPORT

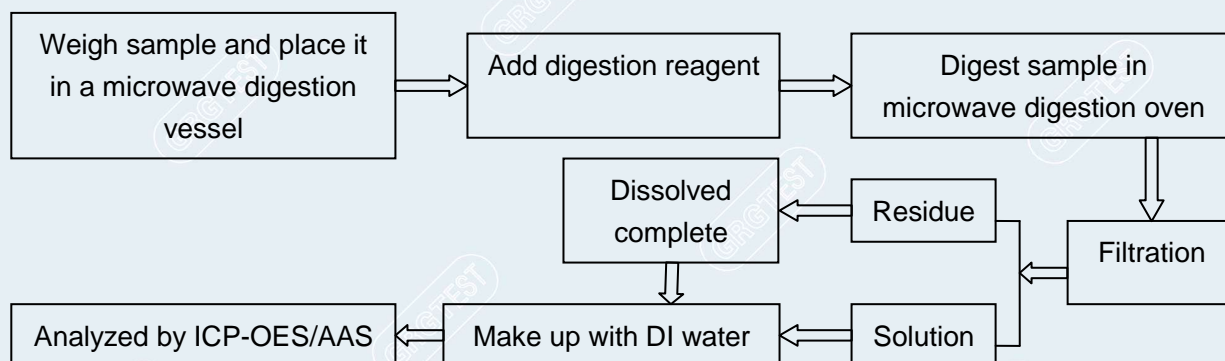
CheckCode:229210  
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## 2) Halogen

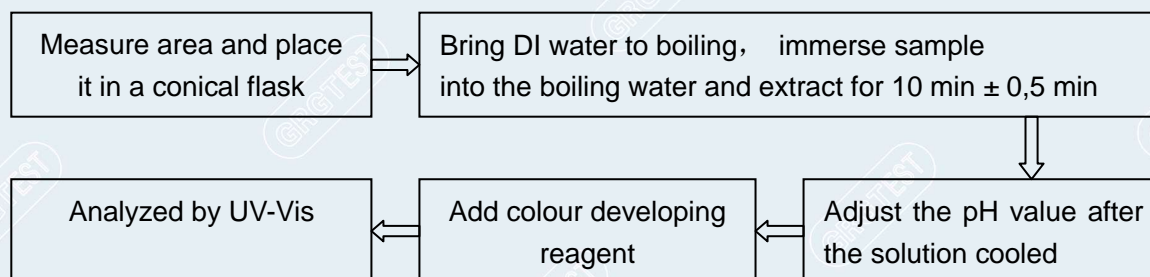
Test Method: With reference to EN 14582: 2016, analysis was performed by Ion Chromatography.

Test Item	Sample	Unit	MDL	Limit	Conclusion
	1				
Fluorine (F)	N.D.	mg/kg	25	---	---
Chlorine (Cl)	N.D.	mg/kg	25	≤900	Comply
Bromine (Br)	N.D.	mg/kg	25	≤900	Comply
Iodine (I)	N.D.	mg/kg	25	---	---
Sum of Cl & Br	N.D.	mg/kg	---	≤1500	Comply

## Test Process for Pb / Cd / Hg



## Test Process for Cr (VI) (metal / plating)



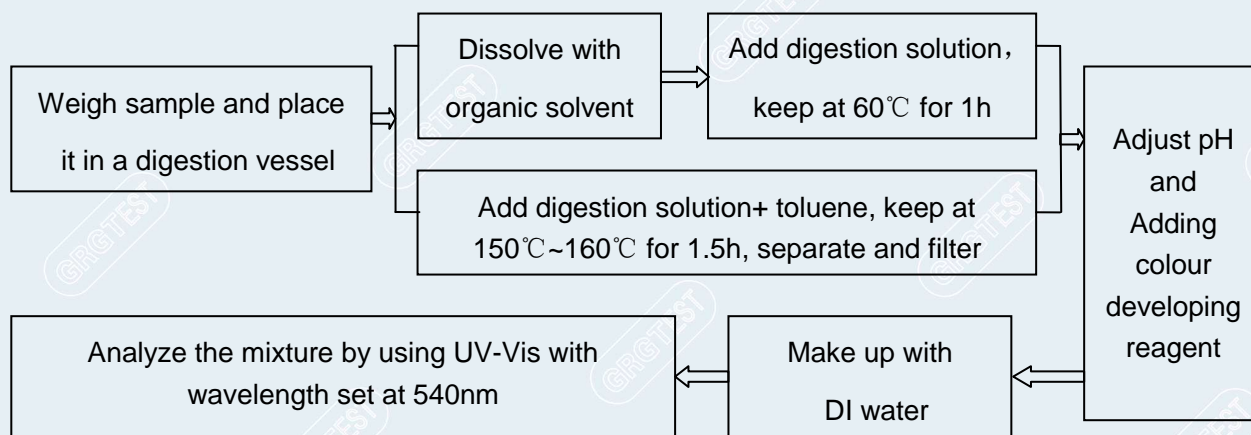
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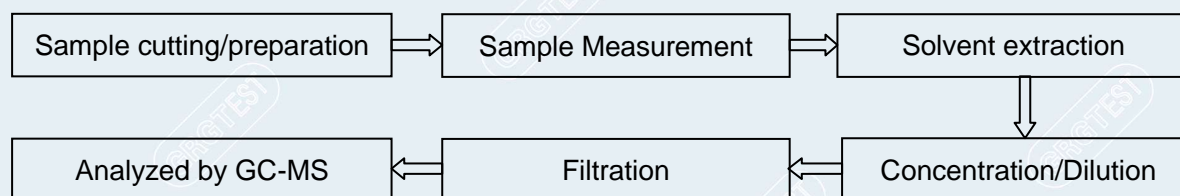
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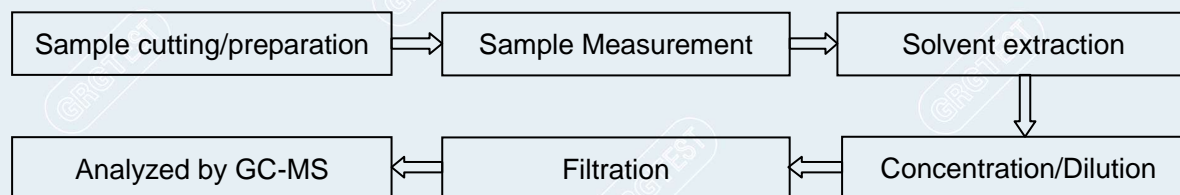
## Test Process for Cr (VI) (Nonmetal)



## Test Process for PBBs & PBDEs



## Test Process for Phthalates



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Halogen test process:

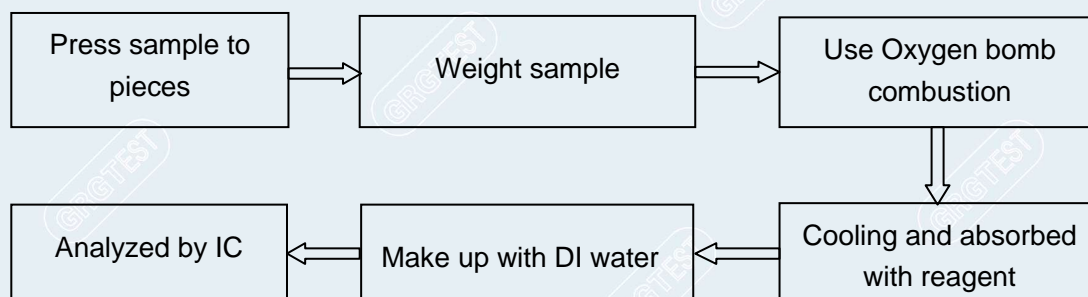
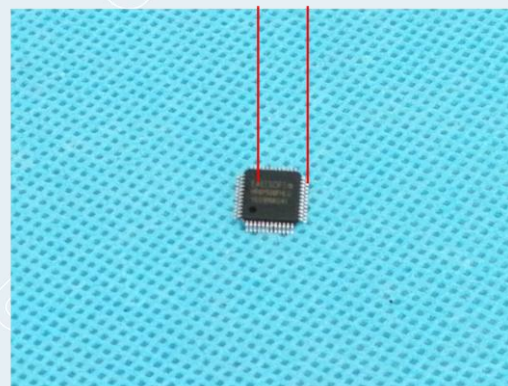
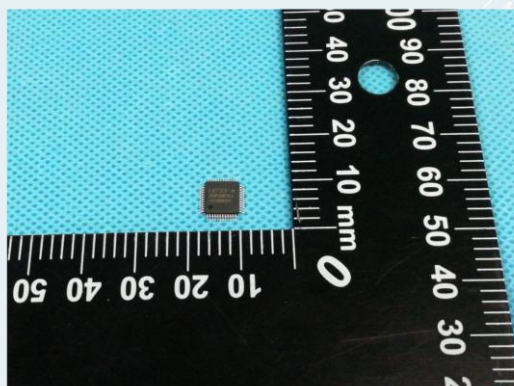


Photo of Sample



-----End of Report-----

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